2022 Annual Report

Title: Annual Management Review of University's Environmental Management System

From: Environment & Sustainability Manager **Date:** June 2022

This management review will examine how successful the performance of the ISO14001:2015 has been for the University of Southampton over the past 12 months; providing Senior Management with the opportunity to steer the EMS to deliver a consistently effective output, whilst ensuring it facilitates our development of continual improvement.

The report will review activity of the EMS until June 2022 and review energy and waste performance between August 2020 to July 2021. This is because the energy and waste performance data are collated against the academic year of August to July. Data is available several months later once reported to HESA, around the following January.

The Sustainability Implementation Group (SIG) as the Senior Management group (as specified in the EMS procedure UOSEMSP018) is expected to review the compliance, performance and embeddedness of the EMS once annually, with SIG minutes to be stored on the University's SIG SharePoint site. The group meet monthly and so the report will be presented at the next meeting. Decisions made at the SIG will also be presented to the Service Excellence Board and Capital Programme Board for input and approval.

The outcome of this Management Review will be reported to the Sustainability Strategy Group in August 2022.

Audit

The last external audit took place between 6th – 8th July 2021 and was carried out by auditors NQA. The outcome of the audit was very positive, with zero non-conformities and zero opportunities for improvement found. The next external audit is due to take place in early October 2022.

Internal Audit results: Supporting document location: UOSEMSR012
The most recent internal audit was conducted on 2nd and 3rd March 2022 carried out by Loreus Ltd.

Internal Audit Findings in March:

Non-Conformities raised – 1
Opportunities for Improvement – 6

1 Non-Conformity = All Display Energy Certificates (DECs) observed were expired. These were delayed due to the covid-19 pandemic, as the contractor completing the work was not able to attend campus. All DECs have now been updated for buildings.

Opportunity for Improvements raised =

1- The institution might benefit from involving more staff in the significance scoring of environmental aspects. If not the whole list then a sample of them. – Sample will be chosen to liaise with necessary staff members.
2- Some of the training to be delivered documented in document UOSEMSR009 referred to 2017 which was out of date. – This was an out-of-date comment that has since been corrected.
3- The glass disposal box in the first floor lab within building 7 did not contain a plastic bag. The auditor was advised this was not required but other instances using a bag were observed. – After discussing with waste provider Suez, it was confirmed that a bag was not required.
4- The colour of bin bags to be used across the University should be reviewed in conversation with the waste contractor. Discrepancies were observed and the auditor was advised of different & contradictory rules. – This was discussed with Suez, who confirmed that the bin bags used were correct, black or clear for general waste and clear for mixed recycling.
5- The reason for build up of waste oil awaiting disposal should be investigated and steps taken to reduce the amount of stored waste oil which is continuing to build up. – Delays with hazardous waste collection from the contractor. This has now been collected and rectified.
6- The disposal of water from the towing tank filtration system into a drain should be reviewed and confirmation sought that this does not require a discharge consent from the Water Utility provider. – This is under review with the water company.

EMS Changes

The impact of the covid-19 pandemic has continued to have an impact on the use of space, with campus buildings operating at a reduced capacity, fewer students on campus and many staff continuing to work from home. This has had an impact on the consumption of energy and water and reduced waste.

Progress has been made towards Goal 1 of the Sustainability Strategy, to be net zero in scope 1 & 2 emissions by 2030. A sizeable proportion of emissions were removed in June 2021 by switching the electricity supply to a renewable tariff. This was initially achieved at a low cost to the university, with an uplift of only £17,000. However, in February 2022, the university was informed that the price of renewable energy would be increasing significantly and with little warning. This was due to very low wind generation in 2020/21, as well as Brexit reducing the amount of Renewable Energy Guarantees of Origin (REGO) available on the market. This resulted in renewable energy costing an additional £130,000 per year. The decision was made to retain certification to REGO due to the carbon saving benefit of 10,000 tonnes per year, but ongoing cost increases will be closely monitored.

The price of gas has also increased since March 2022, exacerbated by the conflict in Ukraine and the uncertainty around the availability of gas. The sudden increase in energy prices emphasises the urgency to implement energy-saving measures across the university estate. The estate consists of buildings in a variety of conditions, with many buildings in need of upgrades to insulation, windows and building fabric to avoid the loss of heat and wasted energy.

Risks:

- Competition for funding to make energy / building improvements.
- Impact of rising energy prices.
- Availability of REGO certificates in the market

- Decarbonisation of the estate to meet net zero goals.
- Required investment in zero carbon new buildings to ensure no additional emissions
- Finding a viable net-zero solution for the CHP's end-of-life in 2026.

Opportunities:

- Rising energy prices reduces the payback period of energy-saving initiatives and on-site renewable generation
- Continue to progress towards achieving ISO50001, which will contribute to energy management goals
- Increased awareness of sustainable initiatives, supplying stories for the communications team
- Opportunities to embed new working practices brought on in response to the COVID-19 pandemic to reduce business and commuting travel

Objectives & Monitoring

Strategy Goal	Objective	Monitoring
	Biodiversity: Maintain & where possible enhance habitats for the benefit of people & wildlife	- Biodiversity Action Plan in use by Biodiversity Group, monitoring progress and promoting continual improvement. - Student-led Hedgehog Friendly Campus group in collaboration with the 'British Hedgehogs Preservation Society', achieved a silver award in January 2022 for their work to protect and care for hedgehogs. The team carried out hedgehog surveys of Highfield campus, gave talks to the university community on caring for hedgehogs at home and completed a fundraising walk, raising £55 for the charity. - Biodiversity plans for landscaping redevelopment at Monte A+B. Wildflowers were planted, along providing hedgehog corridors, bird boxes, insect habitats and insect-friendly plants. - The BioBlitz event in June 2021 was in collaboration with SUSU summer festival. Activities included: species monitoring with Jake Snaddon, promotion of the iNaturalist app to enable visitors to log plant and animal species found and beach clean equipment was given to students to conduct beach cleans at Weston Shore. - In May 2022, the BioBlitz was held in collaboration with the Science and Engineering Day. There was a biodiversity focus for the day, being held in Valley Gardens. Promotion of the iNaturalist app was continued in order to capture species found in the area. - In April 2022, a team of over 50 student volunteers took part in campus green spaces monitoring
Goal 1	**Carbon:** Reduce carbon emissions by 20% from 2005/2006 baseline by 2020 - **August 20 – July 21**	See detailed energy and carbon data below. Data is for the year August 2020 to July 2021.

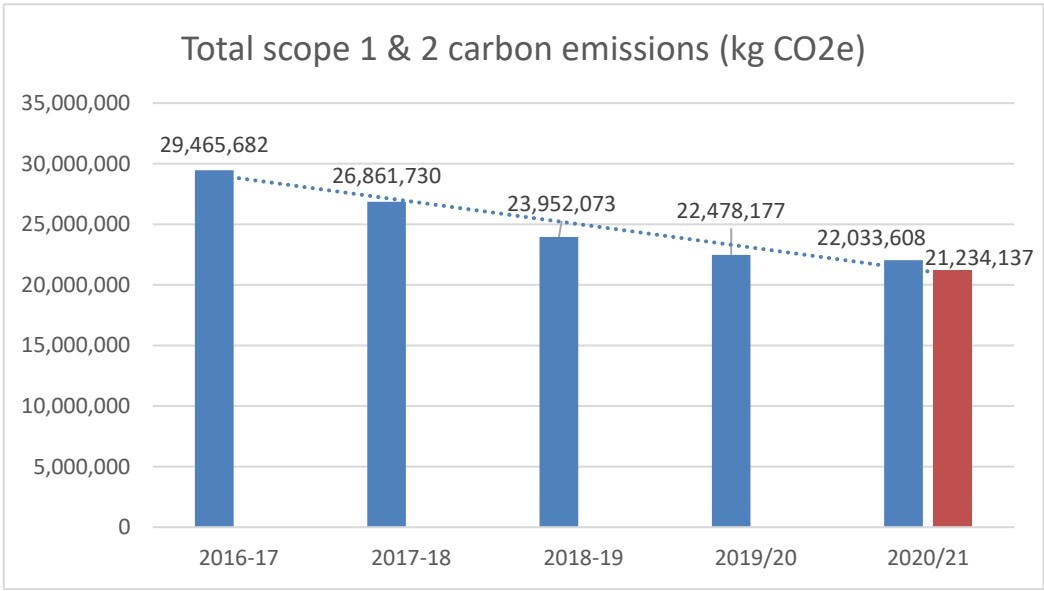
Goal 4	**Education for Sustainable Development:** Sustainability course content; using the campus as a resource for learning	- Sustainability Strategy launched with Goal 4 'Ensure that sustainability is a part of every University education programme by 2025'. Simon Kemp and a group of four interns reviewed how sustainability is incorporated into current teaching by auditing the curriculum. The outcome of the project then highlighted what areas of the curriculum needed additional work to incorporate sustainability into its teaching. - Student Placement in Sustainability Team from Oct 2020 to February 2021, Emily Broadaway, completing work on improving communications to students. Completion of a 'Sustainability Guide' that is available for students on the SUSU website. Second student placement was from February-April 2021, Nikki Craven, who assisted in mapping the carbon associated with each building across the residential estate. - October 2021, Conservation Group volunteers carry out ditch maintenance on 14th October 2021 at Chilworth Conservation Area. - To continue work towards ISO50001 accreditation, Master's student Zijian Wang is due to conduct an energy audit in B.30 in July 2022, to identify to Significant Energy Users. He will be accompanied by two additional student volunteers - May 2022 – Southampton Sustainability Solutions training course now part of staff induction, providing learning material on sustainability, what the university is doing to address sustainability and how staff and students can reduce their environmental impact. - Academic and student representation on operational working groups, including: Biodiversity Working Group, SUSU Sustainability working group, Hedgehog-Friendly Campus group and Chemistry Sustainability groups.
Goal 4	**Engagement:** Engage students & staff and the community on the principals of sustainability	- Use of communications portals such as Sussed and Staff Matters to promote sustainability stories to staff. - Stories shared include: results of the EMS audit, celebration of the halls sustainability fortnight with online sustainability competitions, successes of labs that have joined the LEAF framework, article detailing the carbon-saving switch to renewable electricity, strategy goal updates and promotion of the e-learning module. - The Estates and Facilities Team newsletter has also been used to circulate engagement articles surrounding the EMS, such as: an article to promote the sustainability e-learning module, results from ISO14001 external audit and articles to engage readers with campus biodiversity - Social media has been used to promote national sustainability events, such as World Environment Day, sharing photos of wildlife spotted on campus, such as deer sightings, promotion of the BioBlitz event, promotion of sustainability strategy goals and tips for the Halls of Residences sustainability week. - Engagement with SUSU for the Sustainability month in January 2021 - Supporting the Halls of Residences Sustainability Fortnight in February 2021, with sustainable-living tips and competitions with vouchers for a local veg box company for prizes. - LEAF has continued to be promoted to labs, led by Chemistry labs. The first lab was awarded a bronze award in July 2021, with further labs following in 2021 and 2022 - In spring 2022, there was a variety of student engagement events, starting with a cycling event held in March with a successful bike sale and Bike Doctor stand. In April, a Beach Clean was held with SUSU for Earth Day. Students also made bee and insect houses as part of Sustainability Fortnight to be taken home and one situated in Valley Gardens. - In June 2022, there was a week-long staff engagement event 'Sustainability Transformation Palooza' online and in-person event in collaboration with Southampton, Winchester and Solent universities. - Through June, a staff and student travel survey was launched to capture travel data. This will feed into the Travel Plan, which aims to encourage staff, students and visitors to adopt more sustainable travel habits.

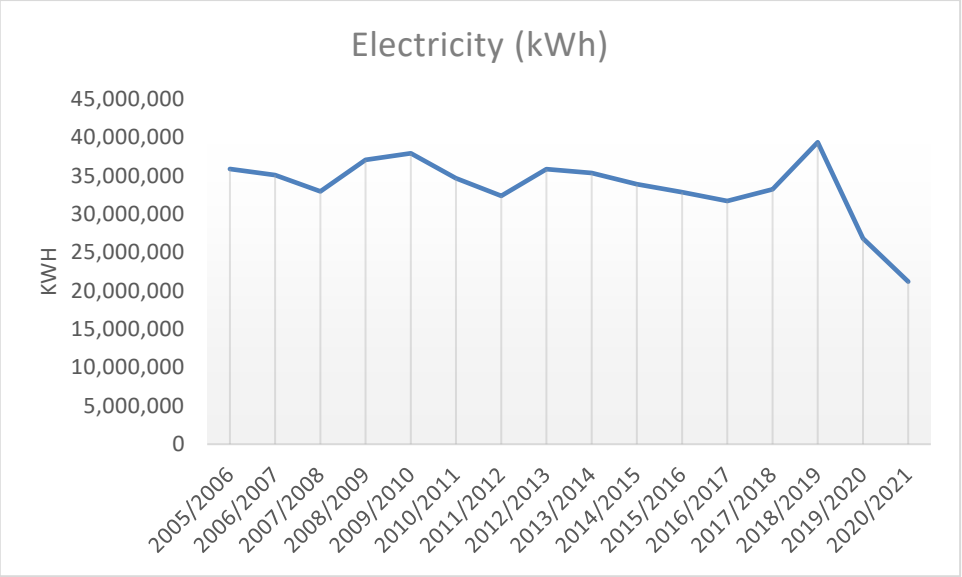
		- Working with Residences to engage with students and reduce waste. Student donations of unwanted kitchen items to be reused for new students in the Autumn and duvet recycling initiative trial at Glen Eyre to reduce the duvets going to general waste.
	Environment Management System: Continual Improvement and Enhanced performance	In July 2021, the EMS External surveillance audit was conducted remotely between 6th-8th July 2021, and we achieved zero non-conformities and zero opportunities for improvement. Across 2020, internal audits were conducted in January, May and November. In 2021, one internal audit was conducted in April.
	Pollution prevention & legal compliance: Minimise emissions to air, land & water Ensure we operate within our Compliance Obligations	Environmental Incidences are logged on the Register of Environmental Incidents UOSEMSR004. Between August 2020 to July 2022, there were seven environmental incidences. Five of these were due to the same heavy rainfall event. 1) October 2020 – Flooding incident on Burgess Road caused by period of significant rainfall. Landscaping team kept debris screens clear of debris to reduce further risk. 2) October 2020 – Flooding in Valley Gardens due to same period of heavy rainfall. Damage was caused to banking and paving. 3) October 2020 – Flooding in Building 46 due to same period of heavy rainfall. 4) October 2020 – Flooding in Building 20 HV lab due to same period of heavy rainfall. Staff were onsite to sweep away water and place sandbags in doorways to reduce risk. 5) October 2020 – Flooding of temporary buildings 38 and 40 due to same period of heavy rainfall. 6) April 2021 – Swarm of bees were found at Avenue Campus Covid testing centre. A bee keeper was called to relocate the bees and was assisted by the fire service. 7) July 2021 – Electronic waste was found in the SUSU bins by a member of the Waste and Recycling Team. This was reported to Paul Davie at SU to pass the message of correct practice to his team. 8) September 2021 – The East Stream was reported as appearing to be low quality. This was reviewed and was due to low rainfall and low quality water source from Burgess Road. 9) January 2022 – A hedgehog was disturbed by a member of the landscaping team at Gateley Hall. No harm was done to the animal and debris was used to cover the hedgehog again. 10) In February 2022, Storm Eunice damaged trees at Chilworth Woods. Lessons were learned from incidences and corrective actions were taken where possible.
Goal 2	**Procurement:** Manage our supply chain by considering the economic, ethical & environmental impacts & whole-life costs of purchasing decisions	The Procurement Sustainability Working Group continued to meet from March 2021 onwards, making progress through the development of a Flexible Framework Sustainable Procurement Tracker. This enables the team to demonstrate how they are adhering to each stage of the Flexible Framework to push continual improvement. The grading levels are from 1-5, with current working practices shown to be at Level 3, which is recommended for ISO14001 standard. The team are now working towards levels 4 and 5.

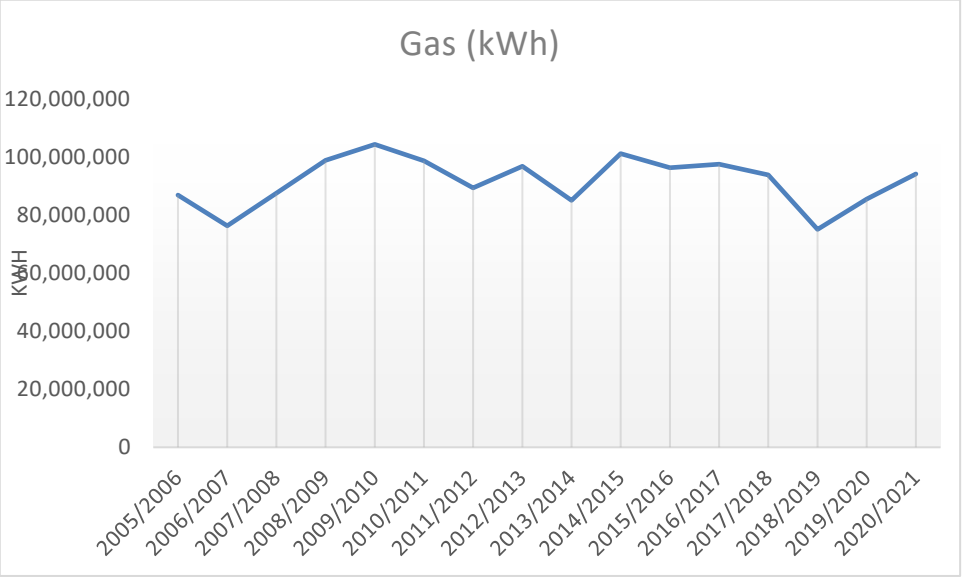
		Sustainable Procurement Strategy Working Group was formed in May 2021 to help progress procurement strategy. A sustainability tracker was developed to highlight areas that need attention and guide progress. An impact analysis formed part of this tracker, to assess environmental impact of each spend category. In May 2021, the Environment and Sustainability Manager delivered a presentation of the strategy goals to the procurement team and collaborated with the Senior Category Manager to show how sustainable procurement can be embedded through the flexible framework.			
Goal 1	**Sustainable Buildings:** Design, build & refurbish our estate in an environmentally responsible & resource-efficient way	The Sustainable Buildings Policy was reviewed and a Sustainable Buildings Interim Guidance was signed off in December 2021. The document highlights: 1. To consider flexibility as an inherent part of the design and build process, to embrace the possibility of change in use as a University asset for its design life. 2. Support our Sustainability Strategy to be net zero in scope 1 and 2 carbon emissions by 2030 and to reduce scope 3 emissions in our operating activities. 3. Reduce the embodied carbon of buildings by using low carbon and recycled materials, using locally sourced material and labour where possible. 4. Design buildings that enable low energy use. 5. Reduce the environmental impact of construction and demolition with strict environmental controls. 6. Buildings will be designed to embrace wellbeing and inclusivity as a vital part of the building's design. 7. New developments and construction must demonstrate investment into protecting and enhancing biodiversity.			
Goal 2&3	**Travel:** Improve transport options available to staff, students & visitors to reduce car travel	The process of updating the travel plan is now underway; staff and student travel surveys were conducted in June 2022 and the updated travel plan document is due to be consulted on in October 2022.			
Goal 2	**Waste:** Manage our waste according to the waste hierarchy – prevent, reuse, recycle, recover, dispose **August 20 – July 21**	**Recycling KPIs:**	**2009/10 Baseline:**	**2019/20:**	**2020/21:**
		65% from all resource streams	46%	47%	85%
		60% by bin weight - Campuses	49%	50%	47%
		50% by bin weight – Halls	34%	36%	36%
		85% from all refurb projects	92%	*gaps in the data due to data losses from	99%

				contractors during pandemic	
		85% from all new builds	98%	-	-
Goal 2	**Water:** Reduce by 30% from 2009/2010 baseline by 2020 **August 20 – July 21**	There have been good water savings throughout the year due to covid-19 changing the use of buildings across the estate. With many staff and students working from home and halls of residences at low capacity, water savings have been significant. The target was to achieve <398,678m³ by 2020. In 2021, consumption stood at 288,587m³. This is a 49% reduction from our 2009/10 baseline.			

Energy and Carbon - Performance against targets - August 2020 – July 2021

Strategy Goal	**Energy and Carbon Reduction Targets** KPI = 20% Reduction	Result	Reason
Goal 1	Tonnes of CO_2 generated from Scope 1&2 emissions	Baseline: 31,983 tonnes of CO_2 2020/21 Actual: 22,034 tonnes of CO^2 2030 Target: net zero CO^2	

			Graph 1 shows the carbon reductions made since 2016/17, including the carbon reduction by switching to a renewable electricity tariff in June 2021. Since the 2005/06 baseline, there has been a 31% reduction in Scope 1 & 2 CO^2 emissions, despite the growing size of the estate. This has been achieved through a change to current carbon conversion factors and energy-saving initiatives. In 2022, it was decided that a more current baseline year would be used going forward. This was agreed by the SIG that a baseline of 2018/19 would be used. In June 2021, the electricity supply was switched to a renewable tariff. This allows for internal reporting to reflect electricity consumption as zero carbon. However, for the annual submission to the Higher Education Statistics Agency (HESA), the most recent carbon conversion factors need to be used as tariffs are not considered as part of this submission. Therefore, reporting on both going forward will ensure transparency.
Goal 1	Electricity Usage in kWh	Baseline: 35,868,000 kWh 2020/21 Actual: 21,196,015 kWh Target: 28,694,400 kWh	 Graph 2 shows electricity consumption since 2005/06 baseline year. This target has been reached with a 41% reduction since the baseline year. Recent reductions from 2019/20 and 2020/21 are due to savings made during the covid-19 pandemic, the closure of some university buildings and reduced capacity across the

			estate. During 2020/21, increased CHP output and overall demand reduction resulted in less electricity needing to be imported from the grid to meet campus demands.
Goal 1	Gas Usage in kWh	Baseline: 86,838,279 kWh 2019/20 Actual: 94,089,524 kWh Target: 69,470,400 kWh	 Graph 3 shows gas consumption since the baseline year. The consumption of gas has increased beyond the 2005/06 baseline year, increasing by 8%. Natural gas consumption increased as the CHP engines were running at full capacity more consistently than prior years. There have also been several changes to the running of the estate due to covid-19. There has been increased ventilation in buildings to increase airflow, resulting in loss of heat. There was also a prolonged cooler spring, resulting in the heating season finishing late at the end of May. These figures do not take into account the growing size of the university since the baseline was set.
Goal 1	Kg of CO_2 / £ turnover	Baseline: 0.103kg/£ 2020/21 Actual: 0.039kg/£	Against the baseline year, there has been a 62% decrease in carbon emissions per turnover, achieving the 2020 target.

		Target: 0.08kg CO2/£	
Goal 1	Tonnes of CO_2 / FTE student & staff	Baseline: 1.37 tonnes CO_2 2020/21 Actual: 0.87 Target: 1.096 tonnes/FTE	CO_2 reductions have continued since the initial baseline year in 2005/06. Large reductions have been made due to the decarbonisation of the national grid, as well as the carbon savings made through low occupancy of the estate during the covid pandemic.

Communication

Communication continues to be an important part of promoting the good work of the EMS and the University's Sustainability Strategy. There is continued use of social media to promote key awareness days, sustainability events, good news stories and advice to staff and students. There have been sustainability-based articles and updates in the Staff Matters magazine, as well as Sussed articles and website updates, with articles addressing issues such as sustainable travel and biodiversity. This is to engage staff in sustainability issues and encouraging others to contribute to the university goals.

In November 2021, the Southampton Sustainability Solutions e-module was launched and made available to all staff and students. The module focuses on three areas: what sustainability is, the university's sustainability strategy and what we can all do to contribute. The module was advertised to the university community via a Sussed post, internal comms weekly digest email and in the E&F newsletter. Reminders were regularly sent out to increase awareness and uptake of the training. Users of the training module can be tracked and there are further plans to continue promotion throughout the year.

The university made the switch to renewable electricity in June 2021, following an upgrade to our current electricity tariff with EDF. This was well communicated to the university community, with an article of Sussed, regular reminders on the Internal Comms Digest email and on social media. The switch to this tariff saved approximately 10,000 tonnes of carbon, but is an uncontrollable cost that could increase without notice.

In October 2021, there was a dedicated Sustainability Day as part of the Freshers Fair, attended by clubs and societies promoting their works and ways to get involved. The University Sustainability Team also had a stand, handing out free vegan food, with vegan recipes to engage students in reducing the impact of their food and a carbon quiz with a focus on food and energy. This was run with the Environment and Sustainability Manager to raise awareness of the carbon impacts of food, water and energy use, offering advice on reducing consumption.

As part of the SUSU Sustainability Fortnight in April 2022, the Student's Union ran a variety of events, from building insect houses, to a Beach Clean to celebrate Earth Day in April 2022. Members of the Sustainability Team also took part in a Sustainability Forum, which invited questions from the audience to enquire about sustainable initiatives and the Sustainability Strategy.

In June 2022, the Environment and Sustainability Manager gave three presentations at the Transformation, Improvement and Sustainability Palooza event, to celebrate process excellence and embed sustainable practices. This was a week-long online and in-person event between Southampton, Solent and Winchester universities. The presentations focussed around three areas of sustainability. Firstly, the sustainability strategy was communicated to delegates, as well as details about student engagement, sustainable initiatives and ways for delegates to reduce their environmental impact. Secondly, a session was run to encourage delegates to make sustainable pledges to reduce their environmental impact. Some pledges included shopping seasonally to reduce the carbon impact of food, another was to build a compost bin to dispose of food waste and another was to only shop for second-hand items for six months. The third presentation was a review of species found by delegates on the iNaturalist and a discussion about local biodiversity.

Continual Improvement

In June 2021, the University switched electricity supply to a UK renewable tariff. This gave a large carbon saving, but the cost of energy continues to rise and is a cost that is out of our control. The cost of REGOs also continues to rise due to low generation of wind power in 2020 and 2021, the restrictions on importing REGOs into the UK following Brexit and the high demand for REGOs due to organisations including renewable energy as part of their net zero strategy. Therefore, although our electricity consumption is considered internally as carbon neutral, continuing to progress energy savings across the estate will mitigate the impact of rising energy prices.

In summer 2021, a request for funding for certification to ISO50001 Energy Management was agreed by the SIG to support goal 1 of the sustainability strategy. To become certified to ISO50001, evidence needs to be prepared that shows continual improvement towards energy-saving goals. The review also needs to include the history of energy management at the university, energy objectives, targets and actions plans, an energy review and analysis of energy consumption. This includes the requirement to highlight the university's significant energy users, which involves an audit to be carried out of the highest energy-consuming buildings, gathering data on the energy uses in the building and an understanding of how long the equipment is used for. The intended outcome of the ISO50001 certification is to enable an organisation to follow a systematic approach in achieving continual improvement of energy performance. Progressing towards ISO50001 will help to guide energy saving targets and contribute towards goal 1 of the sustainability strategy.

There have been several biodiversity projects that have progressed in the past year. As part of the Biodiversity Action Plan, there was a requirement to update the university's green space plan. The plan held in Estates & Facilities highlighted the green areas of Highfield campus, but did not give detail of the plant or animal species found in this area. It was acknowledged that this plan needed updating and that a student project may benefit. Working with the SUSU Sustainability Officer, over 50 students were recruited to use GIS to map the green areas of the university estate. These students also used the iNaturalist app to record any plant and animals species found in order to build a picture of how biodiverse an area is. This study took place in May 2022 and the report is due to be released shortly. The green space monitoring can be conducted on an annual basis to review how the estate is changing and how we can put in steps to increase biodiversity.

The annual BioBlitz event was held in Valley Gardens in May 2022, alongside the SOTSEF event. Visitors were encouraged to download the iNaturalist app to take images of plant and animal species found on Highfield campus. These results are then able to be used in addition to the student green-space monitoring project to demonstrate what species are found across the university estate.

As part of the SUSU Sustainability Fortnight, around 20 staff and students, including two members of the Sustainability Team, attended Weston Shore in Woolston to clean the beach for Earth Day. Several bags of rubbish and plastic waste were collected to reduce ocean plastic. As part of this fortnight, students were also encourage to make insect hotels from bamboo canes. Students were able to take their creations home, although one was saved and has been placed in Valley Gardens.

The Hedgehog Friendly Campus team achieved a silver award in January 2022. This was accomplished through completing hedgehog-friendly 'actions', capturing evidence and submitting to the Hedgehog Friendly Campus group as part of the British Hedgehog Preservation Society. Actions included: a guided fundraising walk to Netley, an organised litter pick from Highfield Campus to the Common and conducting hedgehog surveys in three locations on Highfield campus, capturing prints of hedgehogs, mice, rats and cats.

Conclusion

The covid-19 pandemic has continued to have an impact on reduced energy consumption, as the university was running at a reduced capacity during the year. The CHP running at full capacity resulted in increased gas consumption, resulting in more electricity being generated. This reduced the requirement to draw electricity from the grid, thus reducing consumption. Energy prices began rising in 2021 and will continue to rise throughout 2022, which is an uncontrolled cost that the university has limited control over unit price. However, rising energy prices reduces the payback periods of energy saving projects and emphasises the need to make efficiency savings where possible. Savings made in reducing energy consumption will contribute towards goal 1, to be net zero in scope 1 and 2 emissions by 2030.